A Study on Impact of Artificial Intelligence on Performance of Banking Industry

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Abstract: Today banking is known as innovative banking. Computer technology has given rise to new innovations in the product designing and their delivery in the banking and finance industries. The enormous advances in technology and artificial intelligence sector had been developing at an exceptional quickness and is being applied in many walks of life. The aggressive infusion of information or computer technology like Artificial intelligence had brought in a radical shift in banking operations and is received with enthusiasm due to its capability of taking human-like decisions and avoiding humanlike errors. The concept and scope of Artificial Intelligence is ever evolving. It promotes an effective payment and accounting system thereby enhancing the speed of delivery of banking services considerably. Due to Artificial Intelligence, there is raise in customer satisfaction level, reduction in cost of banking operations, increased productivity and as such there is a great scope for Indian banks to enlarge their tech banking services which could enhance their competitiveness. It entails high levels of automation and web-based services. The paper suggests some measures to tackle the AI based challenges faced by the banks particularly public sector banks.

Keywords: Information Technology, Tech-Banking Challenges, Artificial Intelligence, Opportunity, Consumers, Trends.

INTRODUCTION

Banking has gone through enormous transformations in the past decades. This is a generic fact that the banking sector forms the core of any economy. Banking in India has gone through a long way. Indian banking sector has noticed a number of changes. Quick developments in technology and the digital world in the last thirty years have led to significant changes and transformations in the economic and financial fields. The adaption, internalization, or rejection behaviors of technological developments and new applications also differ between generations. With new generations growing up with technology, the rate of access to technology by the middle class and the increase in the number of active users in social networks have updated the business environment and the way firms do business. Banks began to use technology to provide quality services at high speed. Technology has not broken barriers but has also brought about superior products and channels. This has brought customer relationship with banks in a greater focus. It is also observed as an instrument of cost reduction and effective communication with people and institutions associated with the banking business. In this context, the study focuses on the impact of technological developments in the banking sector and individual's widespread use of artificial intelligence applications in mobile banking. The significance of technology is prominently in the financial sector in view of the competitive advantage for banks resulting in the efficient customer service. In the development of Indian economy, banking sector plays a very important role. With the use of AI technology, there has been an increase in penetration, productivity and efficiency.

Artificial intelligence is a technology with human-like intelligence that can use the decision-making processes of computer systems thanks to the software created and manifests itself in many areas. Within the scope of the study, artificial intelligence applications in banking are effectively used in many areas, such as improving customer experience, Cost reduction, Ensuring enhanced security, increasing operational efficiency, improving risk management, Improved data management, and strengthening marketing strategies. In terms of customer experience, artificial intelligence enables banks to offer a more interactive customer experience. Getting fast and accurate answers through chatbots and virtual assistants efficiently performing bank transactions with AI-supported voice assistants is possible. In addition, artificial intelligence algorithms can offer personal financial recommendations by analysing customer behaviour and better understanding customer's preferences.

LITERATURE REVIEW

Singh and Pathak (2020) defined the concept of artificial intelligence such as "the ability of machines to think on their own and do a task without the help of human beings".

The banking industry represents a data - intensive domain very compatible with artificial intelligence or machine intelligence and its such as the following: the field of machine learning (ML), Natural Language Processing also known as NLP, Deep Learning, interactive voice response (IVR), Speech Recognition or speech- to- text, image analysis and many others.

Mhlanga (2020) investigated the effect of Artificial Intelligence on the process of digital financial inclusion, while highlighting the importance of aspects such as: chatbots, fraud detection and cybersecurity in the context of improving the quality of services provided to bank customers.

Noreen et al. (2023) suggested that the banking industry can use suitable methods based on artificial intelligence in order to improve the quality of customer services as well as the banks' performance indicators.

STATEMENT OF THE PROBLEM
In olden days there is a barter system in India, it's a very difficult time to transact and trade. After that paper notes came to picture and people use those currency for the transaction and feels easy and convenient. In the case of banking transaction, they need to visit bank and do the transaction. There is also a significant disparity among the people of rural and urban area in availing the services of the financial system. Hence, this study is about the technological innovations like implementation of AI reduce the time consuming and error in the transaction that are taken place in Indian banking sector and they have led to the changing trend from cash to cashless payments for easy, efficient and quicker customer service but negatively it increases the unemployment.

OBJECTIVE
- To highlight the growing trend of AI in the banking sector.
- To evaluate the application of AI as an innovative banking technology.
- To analyse the redressal mechanism of artificial intelligence in the e-banking services

GROWING TREND OF ARTIFICAL INTELLIGENCE IN INDIAN BANKING ESPECIALLY DIGITAL PAYMENTS

The table 1 reveals the results of Trend analysis and correlation in terms of Digital payments.

Year	Capital One	Trend %	Pay Pal	Trend %	Stripe	Trend %	NPCI	Trend %	Grand Total	Trend %
2012-13	27.8	100	1439.7	100	218.8	100	316.5	100	2002.8	100
2013-14	35.2	127	1376.8	96	280.6	128	387.2	122	2,079.80	104
2014-15	38.8	140	1376.1	96	313.7	143	404.4	128	2,133.00	107
2015-16	49.3	177	1387.4	96	406.3	186	502.2	159	2346.9	117
2016-17	56.9	205	1,341.9	93	512.5	234	678.1	214	2,589.30	129
2017-18	70.8	255	1,313.7	91	694.1	317	932.6	295	3,011.10	150
2018-19	83.7	301	1,257.3	87	1,108.3	507	1,261.8	399	3,711.10	185
2019-20	95.8	345	1,196.5	83	1,687.4	771	1,737.7	549	4,717.40	236
2020-21	101.4	365	1,096.4	76	3,141.5	1436	2,707.3	855	7,046.60	352
2021-22	111.5	401	1,206.7	84	4,222.9	1930	5,450.1	1722	10,991.20	549
2022-23	127.9	460	1,170.6	81	6,382.3	2917	8,207.6	2593	15,888.40	793
2023-24	140.2	504	1,123.8	78	12,466.7	5698	10,781.2	3406	24,511.90	1224
Mean	78.28	282	1273.9	88	2619.59	1197	2780.56	879	6752.46	337
SD	37.64		114.06		3,652.11		3,496.25		7,050.33	
r	0.99		-0.94		0.81		0.85		0.83	

Source: Compiled from Report on Trend and Progress of Banking in India

For the overall Payment System Indicators, Mean: 6752.46, SD: 7,050.33 and Correlation (r): 0.83 which is positive and high. The growth rate is calculated through trend analysis which is 1224 in the year 2023-24 with an average mean growth rate of 337 over the period from 2012-13 to 2023-24.

APPLICATION OF AI AS AN INNOVATIVE TECHNIQUE.
As per Garrett ranking, the application of AI in internet banking is ranked. The test revealed that Fraud detection stood first

with the mean score of 62.35 and Predictive analysis stand with the least mean score of 42.52.

The table 2 reveals the results of Garrett Ranking for the Application of AI in the e-banking services

Garrett Ranking for the Application of AI in the e-banking services

Reasons	Total Scores	Garrett Mean Score
Fraud Detection	18704	62.35
Customer Service	15850	52.83
Global access	15562	51.87
Document Processing and Translation	15516	51.72
Credit Scoring	14778	49.26
Convenience banking	14441	48.14
Risk Management	13532	45.11
Customer Segmentation and Personalisation	13491	44.97
Enhanced Cybersecurity	13271	44.24
Predictive Analytics	12755	42.52
Total	**147900**	**50.00**

Source: Primary Survey

H_0: There is no significant Difference among the application of AI in the E-banking service.

GRIEVANCE REDRESSAL MECHANISM BY BANKS

The table 3 reveals the results of t test grievance redressal mechanism by banks.

Grievance Redressal Mechanism by Banks

Complaints	t	Sig.	SD	Mean	95% Confidence Interval	
					Lower	Upper
Undue delay	59.57	.000	0.48	1.65	1.59	1.70
Managing without complaining	57.93	.000	0.49	1.62	1.57	1.68
Complaint to Ombudsman	57.50	.000	0.49	1.62	1.56	1.67
Lodge an online complaint	54.71	.000	0.37	1.16	1.12	1.20
Days exceeding time frame	53.87	.000	0.50	1.55	1.49	1.61
Solved within a fixed time frame	53.58	.000	0.50	1.54	1.49	1.60
Days within the time frame	53.43	.000	0.50	1.54	1.48	1.60
Switch over to any other bank	51.65	.000	0.50	1.49	1.44	1.55
Discuss with immediate superior	50.79	.000	0.42	1.22	1.18	1.27
Lodge a written complaint	50.09	.000	0.50	1.44	1.38	1.49

Source: Primary Survey

As per t test, Undue delay in getting the complaints solved score more with the value of 59.57 and is low for Lodge an online complaint (1.16), the standard deviation is high for Lodge a written complaint, switch over to any other bank, Days within the time frame, Solved within a fixed time frame and Days exceeding time frame (0.50) and is low for the complaint related to Lodge an online complaint (0.37). Hence it is observed that the delayed solving of complaints is the major issue faced by the sample respondents.

H_0: There is no significant difference among the Grievance Redressal Mechanism by Banks

SUGGESTION
- Technology being a pervasive one some is still unaware of its benefits and uses of the services provided. Therefore, conscious awareness must be created among customers through training and notices given regarding innovative services provided.

- Mostly services being computerized there is less interaction between staffs and customers in inquiring their queries, clearing doubts etc. So, bank should allot staffs who are specialized in new services, so customers have wider scope in getting personnel advices to avail new services as well as knowing the operation of the services better

- Bank needs to inculcate positive and secure environment feeling towards customer in adopting more innovative service.

CONCLUSION

Artificial Intelligence is gradually accumulating the banking industry to reinforce financial services. It has the potential to revolutionize the Indian banking industry by providing numerous opportunities to improve consumer experiences, increase operational efficiency, control risks, consumer satisfaction level and spur innovation. AI-powered banking services will likely be more efficient, secure, and personalized thanks to features like chatbots, fraud detection, proactive alerts and tailored financial advice. With such advantages, it is nearly evident that the majority of banks and financial institutions will adopt AI to stay competitive and deliver better assistance to their customers. However, several problems are also associated with a technical issue like machine learning algorithm. As it continues to learn and grow, the decision-making capabilities may create problems in the near future. Also, since the manual workforce is being limited, the role of AI is critical in ensuring that banks can serve their customers effectively.

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